

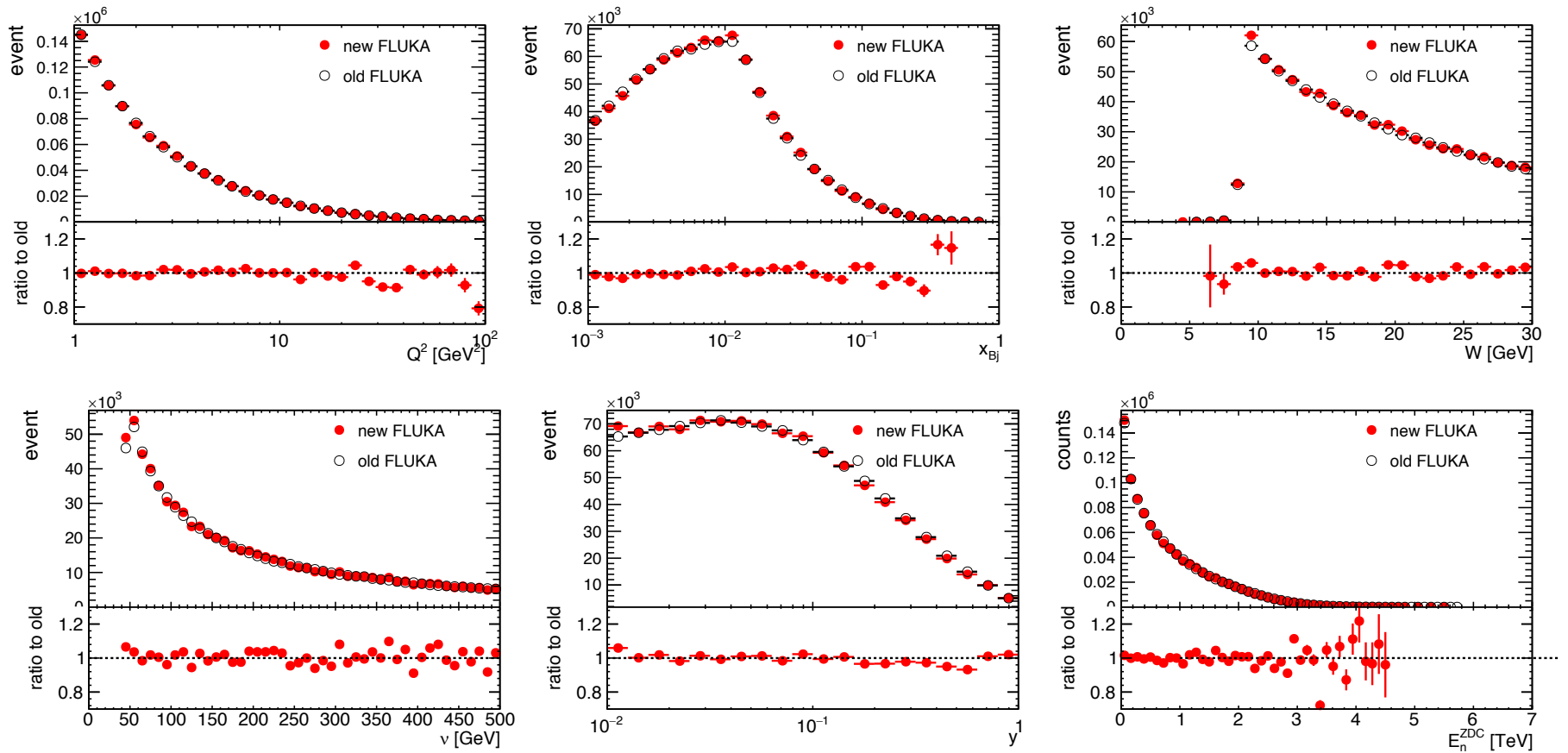
BeAGLE

Wan Chang

2019.12.18

FLUKA

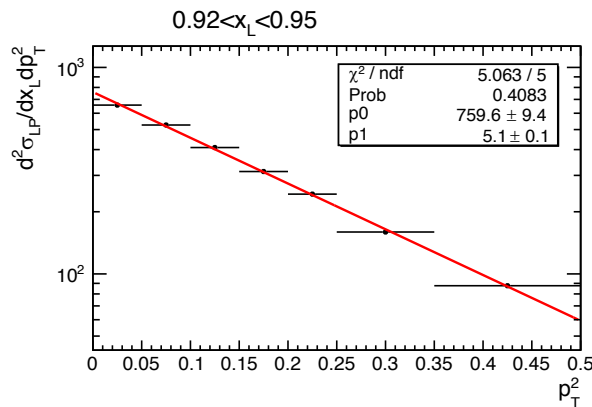
Compare results with latest Fluka (new) to our current BeAGLE (old):



The two measurements are consistent

Pythia vs. ZEUS

- ☐ e^+p 27.5x820 GeV
- ☐ $Q^2 > 3\text{GeV}^2$
- ☐ $45 < W < 225\text{ GeV}$
- ☐ $y > 0.03$
- ☐ Energy of scattered positron $E'_e > 10\text{GeV}$
- ☐ Leading proton $p_T^2 < 0.5, x_L > 0.32$ (x_L is the momentum fraction carried by the outgoing proton)



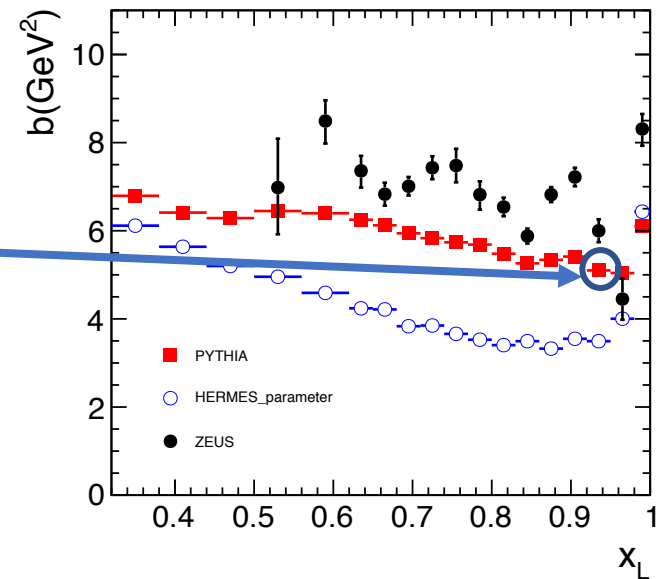
Fit $A \cdot e^{-b \cdot p_T^2}$

	Default	Turn (by Mark)
MSTP(94)	3	2
PARJ(21)	0.36	0.32
PARP(91)	2.0	0.32
PARP(97)	1.0	6.0

PARJ(21): fragmentation p_T

PARP(91) : k_T

ZEUS, JHEP 06 (2009) 074



Parameter setting can be found:

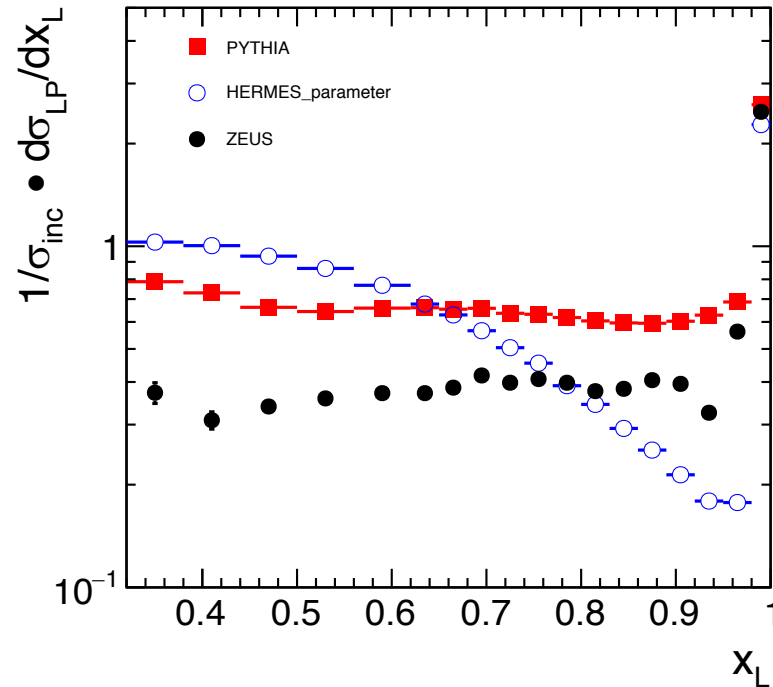
PYTHIA: [/gpfs/mnt/gpfs02/eic/wanchang/PYTHIA_data/27.5x820/](#)

[input.Pythia.ep_noradcorr.27.5x820.1Mevents.AntiH6Targ.Frag=0.32.ZEUScuts.kt=0.32x1.0.eic](#)

HERMES: [/gpfs/mnt/gpfs02/eic/wanchang/PYTHIA_data/HERMESVMD_27.5x820/](#)

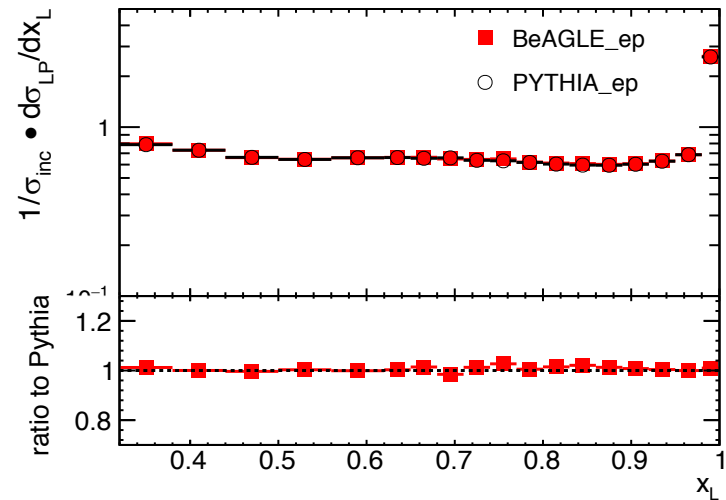
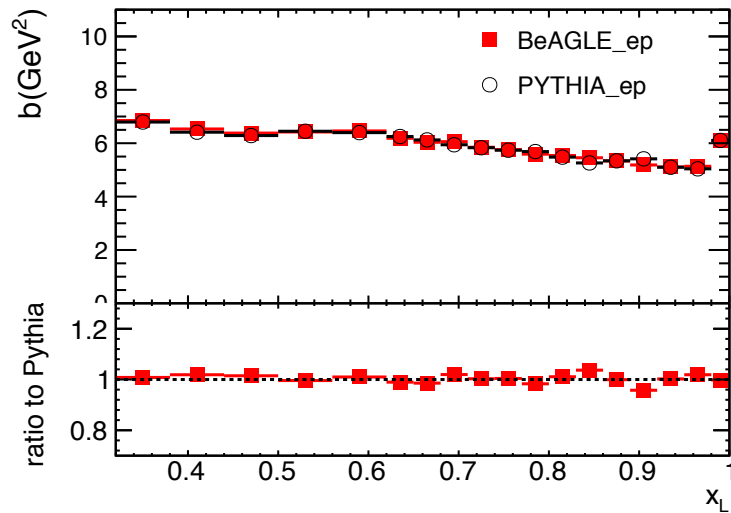
[input.data.ep_noradcor.27.5x820.eic.FF.HERMES.VMD](#) (Note: Doesn't include the parameter tuned by Mark) 3

Pythia vs. ZEUS



- Optimize tune: vary PARP(97) , PARP(91), PARJ(21) to see if we can find a better value?
- Use HERMES parameter + the parameters by Mark ?

e^+p : BeAGLE vs. Pythia



Compare BeAGLE run on ep and PYTHIA for the same parameter settings.

➤ They are agree.